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ABSTRACT

An educational program was developed to assist family groups with adolescent diabetics to improve their problem-solving skills. The program is based on theoretical assumptions and research findings from a study of family problem-solving, which involved nine intact, well-functioning families (five families with a diabetic adolescent and four non-diabetic families) in 27 problem-solving episodes. Key findings from the research are reviewed, and existing programs are described. A three-session program was designed, focusing on the following skills: problem perception, problem-solving organization and interaction, and problem-solving effectiveness. Objectives, content, suggested activities, and leader resources are outlined for each session. The program is designed to be applicable to family groups other than those with adolescent diabetics, as it focuses on problem-solving skills which are relevant to all family groups. (JDD)

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Designing a Family Problem Solving Training Program for Families with an Adolescent Diabetic

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ABSTRACT

Families with a chronically ill child are an essential member of the health services team, yet little attention has been given to the development of family skills which enhance disease management. Diabetes is a disease with a potentially disruptive impact on key family activities. Family problem solving, with respect to handling the day to day issues of family life as well as those associated with disease management, are crucial. This paper reviews the development of an educational program focusing on family problem solving skills for family groups with an adolescent diabetic. The program can be adapted for use with other family groups.

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I Introduction

Problem solving is one key family system activity. It involves interaction by two or more family members which attempts to handle various kinds of situations in which a desired outcome is evident and some barriers prevent its achievement. Klein and Hill (1979) defined a family problem as "any situation involving an unachieved but potentially attainable goal in which the means for achieving the goal, though not immediately apparent, are considered feasible." The adolescent stage of the family presents the family with numerous opportunities for problem solving action. It is also a time when adolescents are more interested in participating in the activity, particularly when the problems involve them in some way. Even so, the period has been described by both adolescents and their parents as particularly trying. (Olson, McCubbin, Barnes, Larsen, Muxen, & Wilson, 1983).

Families with an adolescent diabetic must handle the usual developmental problems of the individual and the family unit as well as those associated with managing a chronic disease. Managing juvenile diabetes occurs within a family context. The management has impact on central family activities: eg. eating and activity patterns. In addition, the management of juvenile diabetes is complicated and difficult to achieve (Gwinn, Olex, Whitman, Crawford, 1984). Some suggest that the normal developmental demands of adolescence are incompatible with good management (Anderson & Auslander, 1980; Johnson & Rosenbloom, 1982). Thus, the dual problems of achieving adolescent development, as well as individual and family management of adolescent diabetes present unique opportunities to study family problem solving interaction.

A series of multimethod research studies including problem solving observation have been conducted (Kieren, 1983; Kieren & Hurlbut, 1985; Kieren and Hurlbut, in progress) which focus on family problem solving and diabetic management. The central question of these studies has been: How do three person family groups with an adolescent interact to solve family problems? The latter two studies have specifically addressed (a) How do father, mother and diabetic adolescent groups interact as problem solving units when confronted with normal developmental and diabetes related problem situations? and (b) How is the identified process related to various aspects of adolescent diabetic management?

The research is based upon the premise that the process used by any family group to solve problems is related to the level of problem

solving effectiveness (in this case diabetic management) that the group can achieve. Studies such as those which are the basis of this paper are important to build a better understanding of family problem solving and to test theory. Another significant outcome should be to derive the means by which the findings could be utilized in professional practice to assist families in attaining the goal of adolescent diabetic management. Minuchin, Baker, Rosman, Lietman, Melman and Todd (1975) demonstrated that even when families with a diabetic member react in a rigid, over-protective fashion they can be taught to reverse this pattern. This is not always easy, and some type of educational intervention may be necessary. In systems terms, families often need assistance in making second order changes to effect more success in their problem solving efforts.

Having data about families with a diabetic adolescent does not lend itself necessarily to program development. All too frequently program developers, such as family educators in agency settings, under-utilize research findings by indiscriminate selection or by the lack of a methodology or strategy for translating research findings into the kind of information they can use (Burr, Mead, & Rollins 1973). More than ten years after Sprenkle's (1976) article there remains a need for integration among theory, research, and practice in the family field. A revealing and accurate choice of words by McCubbin and Patterson (1983) points to the need for a bridge between research and practice: "...Research observations and theory building efforts...offer counselors and policy makers targets and goals around which interventions and programs <u>can</u> be built" (p. 24) (our underlining). Heightening the potential that they <u>will</u> be built requires clear linkages between theory and practice. That we have tried to accomplish.

A running dialogue between research and practice has been a constant in the development of this program. Research about diabetes, family problem solving behaviors, family systems, adolescent development, sibling relations, stress related to chronic conditions, and family wellness, to name but some of the areas, have informed program developers in the construct of experiences useful to families. The description of the study and, more especially, the program that follows will provide evidence of and insight into those processes. Hence, this paper serves specifically to describe the designing process for a problem solving training program for families with an adolescent diabetic. More broadly, it serves as a model for the interface between researcher and practitioner.

The present paper utilizes data from the pilot study of well functioning diabetic and non-diabetic families (Kieren & Hurlbut, 1985). The data on participation patterns, disparate perceptions of problem situations, and problem solving organization and action has been used to establish the focus and objectives of the program.

Assumptions

The following theoretical assumptions guided the research:

The family is a unique problem solving group which differs in many ways from other small problem solving groups (Weick, 1971; Tallman, 1970) .

Family problem solving effectiveness (Maier,1970) has two aspects: quality and satisfaction.

Shared individual perceptions play an important role in identification of family problems.

Systems principles influence the manner in which family members interact in problem solving situations.

The ideal, rational problem solving model provides a starting place to analyse actual family problem solving interaction.

Family problem solving involves rational and irrational aspects.

II The Study and its Key Findings

The study used multimethod techniques to study family problem solving. It involved the observation and analysis of nine intact, well functioning families in 27 problem solving episodes which comprised over 1900 problem solving behavioral units. It also involved the collection of questionnaire, focused interview and diary data (Kieren & Hurlbut, 1985).

Sample

The mother, father, and oldest adolescent child in five families with a diabetic adolescent (three females and two males) and four non-diabetic families (two female and two male adolescents) constituted the sample. The average SES of the families was level two

on Hollingshead's (n.d.) Four Factor Index of Social Status. All families were rated as well functioning through the use of three measures of the families' subjective assessment of adequate functioning: FacesII (Olson, Portner, & Bell, 1983), a Family Strengths Scale (Olson, Larsen, & McCubbin, 1982), and answers to the single question "We are a healthy family."

The adolescent in all but two of the families was the oldest child in the family (Mean Age=15.75 years). All diabetic adolescents had been diagnosed as a diabetic at least one year prior to the study and were in good metabolic control. Control was measured through the family's self-report and deemed to be good control if there was no more than one episode per week of falling outside the "controlled range" for the technique they used to measure metabolic control.

Methodology

Problem Solving Situations

A revealed difference technique modeled after Olson and Ryder's Inventory of Marital Conflicts (1970) served as the problem solving task (Kieren, Hurlbut, Lehman, & Gora, 1985). Nine problem solving vignettes were written addressing typical problem solving issues for families with adolescents. Some of the problems related to general adolescent issues and others were specific to families with a diabetic adolescent.

Participants independently answered a set of forced choice questions about the vignettes to determine which of the nine were salient to each family. A vignette was deemed salient if two or more family members reported that the situation described in the vignette, or a similar situation, had occurred in their family. Based on this, two salient vignettes were chosen for the family's problem solving discussion and a third situation involving friends was also discussed by all families. The family's task was to arrive at a family consensus on the set of forced choice questions.

All family interactions were videotaped in a laboratory setting and coded from videotapes using a 26 category taxonomy. The taxonomy was developed by Kieren (1985a) and modeled after that used by Raush, Barry, Hertel and Swain (1974). Each coded thought unit was assigned one digit indicating the sender, one indicating the receiver and two digits indicating the type of problem solving behavior noted. The data was analyzed using procedures from SAS Basics (1982) and involved descriptive statistics of frequencies of thought units summed across

the three problem solving vignettes for each family.

Diary Technique

A diary technique developed by Kieren (1985b) and Kieren, Poon and Njue (1984) was used in order to allow the families to document the nature and frequencies of their ordinary daily problem solving activities at home. Each family member used the same definition of a family problem and reported independently on a one page form which included a series of prompting questions. The participants kept diaries for two months.

Focused Interview and Other Questionnaires

A focused interview on diabetic metabolic control was used to assess diabetic management. Diabetic management was also assessed by the use of the Diabetic Adjustment Scale (DAS) developed by Sullivan (1979a, 1979b).

Each individual family member was asked about roles, perceived effectiveness, and the number of problems in their daily problem solving interactions. These questions were also developed in a previous study by Kieren (1983).

Key Findings

The key findings from the pilot research are summarized below:

1. On a day to day basis family groups are more often involved in problem solving which involves portions of the family rather than the whole unit.

2. Diary data reveals that family members have differing perceptions of the problem upon which they are working.

3. Family members have difficulty identifying what is the difference between a family problem and an individual problem.

4. The average estimated number of problems by family members was 2.2-3.3 per week for diabetic and non-diabetic groups.

5. Mothers perceived fewer family problems occurred per week than fathers or adolescents yet they reported more actual problems in a diary record.

6. Fathers and adolescents overestimated the number of family problems which they thought occurred in a week when compared to the number they actually reported in a diary.

7. Well controlled adolescent diabetics reported few disease related problems.

8. Family members perceived having more problem solving roles than adolescents in well functioning families.

9. Well functioning families engage in orientation and identification of the problem early in the problem solving process; alternative generation, evaluation, and decision come later in the process.

10. Information seeking is a behaviour which cuts across all stages (early, middle, and late) of the problem solving process in well functioning families.

11. There was a more balanced participation of mother-father-adolescent in diabetic families than in non-diabetic families. Non-diabetic adolescents still participated in important aspects of the process (evaluation and decision).

III Developing An Educational Intervention

A Review of Existing Programs:

Teaching of problem solving skills relevant to the management of diabetes or chronic illness within a family context is a recent innovation, and few studies or programs exist which have this focus. The view of chronic illness as affecting the whole family, and thus being a family problem, is very recent as well. Programs which are relevant to the program described in this paper come from a variety of fields and areas.

Hoopes, Fisher, and Barlow (1984) classify programs which are aimed at families or couples into 3 types: family enrichment, family life education, and family therapy. Each of these approaches has its own goals and methods. Family enrichment is primarily an experiential learning process, which aims to enhance and enrich family relationships and strengths and to increase satisfaction in the whole family. Family life education is a more cognitive process, of providing information and

education, often to individual family members. Family treatment is primarily therapeutic in nature, aimed at correcting problems or dysfunction within the whole family or family subsystems.

There are a number of programs using problem solving skills training which are therapeutic in intent. Blechman (1980) describes an intervention for families which teaches a formal problem solving method using a board game. The family is encouraged to practice the problem solving process using the board game, and to write contracts, thus learning problem solving skills as well as resolving the family's presenting complaints. This program was used in several studies which reported short-term improvements in specific complaints and in the mode of family interaction (Blechman & Olson, 1975; Blechman, Olson, & Hellman, 1976; Blechman, Olson, Schornagel, Halsdorf, & Turner, 1976).

Robin (1977, 1981) and Bright and Robin (1981) describe a family intervention program aimed at family groups of one or both parents and a teenager. Families were taught a four-step model of problem solving in conjunction with communication training. Jacobson (1977) reports using a method of problem solving skills training and contingency contracting in treatment of discord in married couples.

Problem solving training is also used in educational programs. Ridley and Harrell (1976) have developed a problem solving program for premarital couples which is based on a behavior-exchange model. Johnson (1972) and Johnson and Johnson (1982) describe a formal problem solving model which can be used by groups of adults, and Henton, Marotz-Baden, and Kieren (1979) discuss a program for teaching problem solving and decision-making to adolescents.

Programs which are designed to aid in management of diabetes or other chronic illness are not generally problem solving related. However, Goldfarb, Brotherson, Summers, and Turnbull (1986) offer a comprehensive guide for families with chronic illness which stresses the need for problem solving skills, communication, and enrichment of family strengths. Surwit, Feinglos, and Scovern (1981), and Fowler, Budzynski, and Vandenberg (1976) used biofeedback and muscle relaxation exercises with adult diabetic women to aid diabetic control, and Rosenbaum (1983) used biofeedback in conjunction with family therapy. Rose, Firestone, Heick, and Faught (1983) used a program of stress management for teenage diabetic patients, and Fagan, Kaplan, and Dunnett (in process) used stress management, education about diabetes, and counselling as an intervention for teenage diabetics. Epstein, Beck, Figueroa, Farkas, Kazdin, Daneman, and Becker (1981) used an educational

program for families with a diabetic child which included insulin adjustment, proper diet, increased exercise, and a program of reinforcement by the parents.

The programs discussed above, with the exception of Goldfarb, Brotherson, Summers, and Turnbull (1986) are primarily educational or therapeutic. The current program differs from those discussed above in that it is intended to be an educational and enrichment program, based on educational principles to develop family strengths through an experiential process. Although a formal problem solving model is discussed, the teaching of an ideal problem solving procedure is not stressed or desirable. Rather, families are encouraged to analyse and practice certain elements of their current problem solving behavior in order to increase problem solving effectiveness.

Program Development

Klerman (1985) has suggested that interprofessional problems often interfere with the delivery of needed services to chronically ill children and their families. Role conflicts, distrust and poor coordination and communication are typical problems. However, it is evident that the management of chronic illnesses like adolescent diabetes demands the efforts of a multiprofessional health team which has been integrated into a well functioning unit. While the members of the team may vary, most will include physicians, nurse practitioners, psychologists, social workers and family life educators. The following program has been designed by a group of professionals who offer expertise in individual and family development, family chronic illness, family interaction, family life education and program design. It is expected that the program will be used within the larger context of total health care for an adolescent and his or her family. The other assumptions made were the following:

1> The program will be used with a group of three to twelve family units, which include the adolescent and his or her parent(s).

2> Primary focus will be placed on providing information plus problem solving practice for individual family groups. While some between family sharing will occur, it will be at a low risk level.

3> The program content and exercises will be designed to be strength builders.

4> The program will be addressed primarily to the adolescent stage of the family and will be most relevant to diabetes as a chronic illness rather than other chronic illnesses.

5> In order to respond to the time pressures of families with chronic illnesses, sessions will be limited to three.

6> Materials will be provided to minimize note taking at sessions, to encourage at home practice, to provide the resources for involvement of other family members, e.g. (siblings, relatives) and future references.

IV The Program

Based upon the research findings, relevant problem solving theory, and the specified program planning assumptions, a three session (3 hour per session) program has been designed which focuses on these key problem solving skills: problem perception, problem solving organization and interaction, and problem solving effectiveness.

The Sessions:

I. Problem Perception --"Seeing it From Everyone's Point of View"

II. Problem Solving Structuring --"Getting Organized to Problem Solve"

III. Acting as an Effective Problem Solving Unit --"Getting the Results we Want"

The sessions are organized in the following manner: Objectives, Content, Suggested Activities, and Leader Resources. A workbook has been designed for each family member to use throughout the sessions, and a teacher's resource manual for the session leaders. The program plans are described below.

Session I. Problem Perception "Seeing It From Everyone's Point of View"

Upon completion of the session the family members will be able to:

1)Define a family problem.

2)Identify the unique features of the family as a problem solving group: strengths and limitations.

3)Identify and acknowledge different family perceptions of a given problem situation.

4)Analyze the role of problem perception in personal family problem solving situations.

Content Activities

I. Welcome and introductions	Distribute nametags and workbooks.
II. The Family and Problem Solving	Introduction Activity: see attached
A. What is a problem? -definition -examples	Transparencies with definitions.
B. Problems & everyday living -part of essential family functioning -from the ordinary to the sublime - problem solving in families with a chronic illness like diabetes.	Give examples.
C. Families versus other problem solving groups - problem solving by and in families .whole family versus part group .what makes it a family problem -characteristics of family as a problem solving group .power structure .resource structure (family is a combination of resources. Stress this.) .timing .history .setting .developmental and situational problems .unconditional love .unequal access to primary data	Transparency with definitions and principles - see attached Transparencies with cartoons to illustrate each point.
III. Problem Perception and Problem Solving	
A. Perception defined	Blind Man Story transparencies- (Hoopes, Fisher, and Barlow 1984)

	Exercise 1-1: Perception
B. Its role in Problem Solving 1. which problem 2. what part of the problem	Exercise 1-2: Film: David and Hazel, National Film Board
IV. Problem Solving practice	Exercise 1-3: Vignettes from research
V. Homework	Diary exercise. Forms in workbook

VI. Evaluation Plan

Resources
Weick, K. (1971)
Research vignettes (Kieren, Hurlbut, Lehman, & Gora, 1985)
Blind Man Story (from Hoopes, Fisher, & Barlow, 1984, pg 234-238)
Transparencies of definitions and concepts.
Newsprint, toilet paper for intro activity.
Film: David and Hazel (National Film Board)

Session 2. Problem Solving Structuring: "Getting Organized to Problem Solve"

Upon completion of this session the family members will be able to:
1) Identify the common as well as unique situations families face across the life cycle
2) Understand the differences between the formal model of family problem solving and real family problem solving, based on information about the family as a problem solvimg unit
3) Discuss basic premises related to how families might organize to reach their problem solving goals
4) Analyze their own family's style of organization for problem solving tasks: family strengths, problem solving roles, and differences in perception.

Content	Activities

I. Review of last session
-concepts
-questions/comments

II. Process Homework

Wrap up homework: compare the types of problems recorded, and the variation among family members. Sharing between families? Use newsprint.

III. Real Family Problem Solving
-Kinds of problems families experience
. developmental
.situational- like those related to chronic illness
. ordinary vs crisis level

Transparency with research evidence

-How do families operate as problem solving units?
. what do we know
. formal vs real evidence

Exercise 2-1: Murder Mystery Game. (Problem solving roles and communication.)

IV. Organizing for problem solving
(some basic premises)
A. Who
. who should be involved
.roles they play
B.What
. what is the task(goals)
. do families make this explicit
C.Where
what is the setting
immediate vs later on
D.When
. timing
. use of cooling out periods
E. How
.how do we act now?
.diagnostics
.what do we know about process?

Lecturette: use Weick (1971) Klein & Hill (1979); Kieren & Hurlbut (1985).

Exercise 2-2: The Hole. Use to assess each family's problem solving.

Exercise 2-3: Role play or: Video each family doing The Money Prize. Have them analyse the process. Use Family

identifying the problem goal setting number of alternatives how families evaluate alternatives who makes decisions how decisions are made what makes a problem effective	Strengths Barometer to look for strengths, roles, and differences in perception.
V. Homework Problem solving situation for them to practice	Each family is to discuss 2-3 family problems before the next session and make notes on forms in the workbook.

VI. Evaluation Plan

Resources
The Hole Exercise
Weick (1971)
Klein and Hill (1979)
Kieren and Hurlbut (1985)
Research evidence on decision making, participation of different members, Haley, 1967, 1964; Johannis & Rollins, 1960; Mishler & Waxler, 1968; Tallman, 1970; etc.
Video camera, VCR, monitor, and tapes for each family.
Family Strengths Checksheet and Barometer for diagnostics.

Session 3. "Acting as an Effective Problem Solving Unit: Getting the Results we Want"

Upon completion of the session the participants will be able to:
1) Define what is meant by problem solving effectiveness: quality and satisfaction components
2) Distinguish between low and high quality and low and high satisfaction in a solution
3) Discuss the different methods of balancing quality and satisfaction in diabetes related problems and other problems
4) Be able to integrate the information from the program in practice problem solving situations.

Content	Activities

I. Review of last session
- -concepts
- -questions/comments

II. Process homework

Discussion of records from problem solving practice. Wrap up homework exercises: Discoveries about how your family operates-commonalities among participants, and uniquenesses. Dealing with these discoveries.

III. Effective FPS
- - Definitions
- -Role of perception
- - two parts of effectiveness
  - . quality
  - . satisfaction

Transparencies with definitions and examples.

Role play of different points of view of an effective solution.

IV. Quality Solutions
- - Definition
- -Quality for whom
- - Assessing quality in problems related to diabetes

Exercise 3-1:
Problem practice situations on quality and satisfaction.

V. Satisfactory Solutions
- -Definitions
- -satisfactions for whom
- -Assessing satisfaction in diabetes related problems

VI. Arriving at Effectiveness
- - Balancing personal and family goals
- - Dealing with outside evaluations
  - . peers
  - .medical system
  - .relatives

Transparency with cartoon to illustrate.

. other
- Strategies for diabetes related problems
  . compromising
  . coercing
  . changing the goal
  . giving in
  . giving up
  . others

Exercise 3-2:
Role plays on problem solving strategies.

- Applying this to other areas of Family Problem Solving
- in family
- outside of family

Exercise 3-3:
Problem solving vignettes to practice.

VII. Review

VIII. Evaluation Plan

Resources
role plays on effective solutions
problem solving situations on quality and satisfaction (Kieren and Looney)
role plays on problem solving strategies
problem solving vignettes to practice(Looney)

V. Application of the program to other family groups

This program is designed to be applicable to family groups other than those with adolescent diabetics. The program focuses on problem solving skills which are relevant to all family groups. Those portions of the content which address diabetes in particular can easily be modified to accomodate the needs of families with a chronic illness or disability other than diabetes. This can be accomplished by replacing the diabetes-specific problems found in sessions 2 and 3 with common problems experienced by the group in question. To meet the needs of families without illness or disability, common problems experienced by families at the adolescent stage can be substituted.

VI. Next Steps

The program we have just described has received preliminary

screening by a group of diabetic adolescents and their parents in order to determine relevance and interest in the topics chosen, appropriateness of the format (timing, number of sessions, involvement of family groups, level of risk), and appropriateness of the methods. In addition, several family life education program planners have reviewed the program with respect to objectives, content, flow, resources, appropriateness of methods, and level of presentation. Formative evaluation of the operation of the program is planned, prior to an experimental study comparing the impact of this program with others in affecting diabetic management.

VII. Summary and Conclusion

Family education programs related to the skills which may encourage the management of chronic illnesses are relatively new. For that reason, we know very little about their relative impact. Therefore, program development must include ample opportunity for formative and summative evaluations. In addition, attention must be given to addressing the issue of interprofessional cooperation among health team members.

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